

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Amit Lewin, et al.	§	Atty.Dkt.No.:	5957-48401
Serial Number:	10/654,619	§	Examiner:	Nguyen, Van Kim T.
Filing Date:	September 3, 2003	§	Group/Art Unit:	2456
Title:	SYSTEM FOR	§	Conf. No.:	4999
	TRANSPORTING	§		
	ETHERNET FRAMES OVER	§		
	VERY HIGH SPEED	§		
	DIGITAL SUBSCRIBER	§		
	LINES	§		
		§		
		§		

REPLY BRIEF

In response to the Examiner Answer entered November 25, 2009, Appellant presents this reply brief, which has been prepared according to the new proposed Board rules. The same claim and argument headings that were used in the Argument section of the Appeal Brief are used below. Appellant respectfully requests that this appeal be considered by the Board of Patent Appeals and Interferences.

TABLE OF CONTENTS

TABLE OF CONTENTS	2
TABLE OF AUTHORITIES	3
STATEMENT OF TIMELINESS.....	4
STATEMENT OF FACTS.....	5
ARGUMENT.....	6
First Ground of Rejection:	6
Claim 8:	6
Second Ground of Rejection:	15
Claims 30-32, 34-36, 40, 42-44, 46-47, and 52-56:	15
Third Ground of Rejection:	17
Claims 33, 37, and 45	17

TABLE OF AUTHORITIES

File History

Examiner's Answer.....	Passim
Appeal Brief.....	Passim

Patents

Locklear	Passim
Snodgrass	14
Terry	Passim
Treadaway	Passim

STATEMENT OF TIMELINESS

The Examiner's Answer ("the Answer" herein) was entered on November 25, 2009. This reply brief is being filed on January 25, 2010. Accordingly, this brief is believed to be timely under Proposed Board Rule § 41.41, which allows for filing of a reply brief within two months of the date of the mailing of the Answer.

STATEMENT OF FACTS

This Reply Brief does not rely on any additional facts not previously set forth in the Appeal Brief filed September 11, 2009 ("Appeal Brief" herein).

ARGUMENT

First Ground of Rejection:

Claim 8:

The combination of Terry and Locklear does not teach the features of the claims

As discussed in the Appeal Brief, Terry teaches encapsulating Ethernet frames into ECAP frames and transmitting the ECAP frames using a specialized protocol developed for the ECAP frames. Locklear, on the other hand, teaches receiving Ethernet frames, decapsulating each frame to extract the underlying IP packet, and then encapsulating the IP packet into XDSL frames for transmission on the XDSL communication medium. One of skill in the art, when presented with these teachings, would not arrive at the features of claim 8. Instead, one would use Locklear's decapsulation/re-encapsulation method, which is entirely different than the mechanism of claim 8.

The Answer responds to this argument in the Answer at page 8, last paragraph, to page 12. The Answer asserts that Terry teaches encapsulating Ethernet frames in ECAP frames, and that Locklear offers the missing

element of transmitting Ethernet frames on VDSL facilities. Specifically, the Answer explains at great length how Locklear teaches the transmission of data between two VDSL modems without requiring the passing of data through the protocol stacks, stripping the VDSL packets down to the IP packet and re-encapsulating the data as discussed by Appellant in the Appeal Brief (see Appeal Brief, pages 18-19 and also see Answer, pages 9-12). However, this lengthy discussion in the Answer concludes with the assertion that the frames at modem 50 of server 16 would not have to be stripped down to the IP format and encapsulated at the modems 50 of device 12 **because both modems use the same protocol: VDSL**. See Answer page 12, last paragraph.

This is the **fundamental, fatal flaw in the Examiner's reasoning**, applying the communication of frames through two modems that use the same protocol to the question of how to communicate frames from two different protocols. Two modems that use the same protocol clearly communicate frames formatted according to that protocol, as asserted by the Examiner. However, such teachings are simply irrelevant to the question of how to transmit frames from a different protocol. Particularly, Locklear's teachings that XDSL packets can be transmitted from one XDSL modem to another is **irrelevant** to the transmission of Ethernet (or ECAP) packets on

XDSL (or transmission of data on XDSL that was received using any other different protocol). One of skill in the art, faced with the problem of attempting to transmit Terry's ECAP frames over a different protocol, would not be able to solve the problem using Locklear's teachings of transmitting XDSL frames between XDSL modems. Stated another way, the teachings of Locklear that the Examiner is citing includes no teachings from transmitting non-XDSL frames (e.g. Terry's ECAP) over XDSL.

Instead, one of skill in the art would look to Locklear's teachings relating to receiving data via an Ethernet protocol (or any other different protocol) and transmitting the data via an XDSL protocol. The mechanism taught by Locklear to achieve this end, however, includes decapsulating Terry's ECAP frame and Ethernet frame to extract the IP packet, and then to encapsulate the IP packet for transmission on XDSL. (See Locklear, col. 6, lines 4-10 and 13-25, and col. 6, line 60-col. 7, line 1 as set forth in the Statement of Facts in the Appeal Brief). That is, the skilled artisan would be led to a configuration in which the **Ethernet/ECAP frame is destroyed** and the **underlying IP packet is encapsulated in XDSL frames**. **Such a modification/adaptation of the teachings of Terry and Locklear, however, would not result in the features of claim 8:** "encapsulating ... Ethernet frames within a plurality of frames, wherein each Ethernet frame is

encapsulated entirely within a respective frame of the plurality of frames ... and transmitting said plurality of frames over said VDSL facility."

One cannot simply take Locklear's teachings of transmitting XDSL frames between XDSL modems and conclude that it would be obvious to encapsulate Ethernet frames in XDSL frames and transmit them on XDSL. Using standard XDSL, large IP packets must be divided into multiple XDSL frames even though such IP packets can be transmitting using one Ethernet or ECAP frame. Because of this issue, Locklear teaches decapsulation and re-encapsulation as the mechanism to be used. **Locklear's own teachings** of decapsulation and re-encapsulation of Ethernet data to transmit such data on XDSL **prevent a conclusion of obviousness.**

Locklear Does not Teach Encapsulating Ethernet Frames in VDSL Frames

As noted in the Appeal Brief (pages 20-21) and above, Locklear teaches processing Ethernet frames in an IP stack to obtain the IP packet from the Ethernet frame, and encapsulating the IP packet in one or more XDSL frames for transmission on the XDSL interface. Locklear teaches that all XDSL traffic passes through the XDSL protocol layers up to the IP layer, and then down from the IP layer through the Ethernet protocol layers to the Ethernet interface. Similarly, all Ethernet traffic passes through the

Ethernet protocol layers to the IP layer, then down through the XDSL protocol layers to the XDSL modems.

The Answer responds to this argument (see Answer, page 13, first two paragraphs), asserting that Applicant is arguing features that are not in the claims (i.e. encapsulating Ethernet frames in XDSL frames). Appellant respectfully submits that the Examiner misapprehends the argument. Appellant is arguing that the combination of references does not teach encapsulating Ethernet frames in XDSL frames, as asserted by the Examiner. The combination of Locklear and Terry **must teach, among other things, encapsulating Ethernet frames in XDSL frames, with each Ethernet frame encapsulated entirely within a respective XDSL frame,** in order to render claim 8 obvious. Otherwise, the combination does not teach or suggest "encapsulating ... Ethernet frames within a plurality of frames, wherein each Ethernet frame is encapsulated entirely within a respective frame of the plurality of frames ... and transmitting said plurality of frames over said VDSL facility" as recited in claim 8.

The Examiner also asserts that Appellant's arguments attack the references individually. See Answer, page 13, second paragraph. This is false. The Examiner has postulated an erroneous *prima facie* case of obviousness, citing teachings from Terry and Locklear to allegedly support

that case. Appellant has illustrated why the teachings of Terry and Locklear do not, when combined, result in the claimed invention. Such illustrations must by necessity refer to what each reference teaches, to show why the combination fails.

The Answer further asserts that Locklear teaches what Terry fails to teach, i.e. transmitting ECAP frames over a VDSL facility by establishing an appropriate XDSL protocol (Answer, page 13, second paragraph, last sentence). Appellant disagrees, having illustrated above that Locklear unequivocally does **NOT** teach transmitting ECAP frames (or any other frames besides standard XDSL frames). In Locklear, all frames that are not XDSL frames are passed through the IP stack for decapsulation and re-encapsulation, as highlighted above. Only XDSL frames are transmitted from one modem to another without such processing. ECAP frames are not XDSL frames, and cannot be transmitted by Locklear in this format. Instead, Locklear teaches that Ethernet frames must be decapsulated and re-encapsulated for transmission. In conclusion, Appellant respectfully submits that the Examiner's reasoning on this basic technical point is in error.

Fixed-Size VDSL Frames Cannot Accommodate Ethernet Frames

As noted in the Appeal Brief (pages 21-22) Terry teaches a variable length (ECAP) frame based on the encapsulated Ethernet frame size. In contrast, XDSL frames (as taught in Locklear) are **fixed-size frames** defined by the XDSL standards. The fixed-size frames of Locklear cannot successfully encapsulate the ECAP frames.

The Answer responds to this argument (see Answer, page 13, last paragraph to page 14, first two paragraphs). Specifically, the Answer asserts that even if only the encapsulated Ethernet frames that are compliant with VDSL standards would be successfully transmitted over Locklear's XDSL, such teachings would lead one of skill in the art to encapsulate Terry's Ethernet frames in such a way as to comply with the XDSL standards. See Answer, page 14, second paragraph. Again, **this reasoning is fundamentally flawed because it is not possible to encapsulate Ethernet frames in such a way as to comply with XDSL standards.** Many Ethernet frames are larger than the XDSL standard frame. Because of this problem, Locklear teaches that Ethernet frames must be decapsulated to the underlying IP packet and re-encapsulated into XDSL frames. During the re-encapsulation, the IP frame can be divided into multiple XDSL frames for transmission. However, such operation would fail to teach: "encapsulating

... Ethernet frames within a plurality of frames, wherein each Ethernet frame is encapsulated entirely within a respective frame of the plurality of frames ... and transmitting said plurality of frames over said VDSL facility" as recited in claim 8.

Furthermore, Appellant did not admit that any of Terry's ECAP frames would be successfully transmitted on Locklear's XDSL, as asserted by the Answer (see Answer, page 14, second paragraph, first sentence). Appellant contends that the combination of Terry and Locklear does not teach transmitting any ECAP frames on XDSL, but rather teaches decapsulation and re-encapsulation, as repeatedly emphasized by Appellant throughout the Appeal Brief and this Reply Brief.

The fact that Locklear teaches transmitting data between Ethernet and XDSL using decapsulation and re-encapsulation, combined with Terry's ECAP teachings, does not lead one to a system in which each Ethernet frame is encapsulated in a frame transmitted on XDSL. Instead, **one of skill in the art would conclude that ECAP frames must be decapsulated down to the IP packet, and the IP packet encapsulated in XDSL frames, to transmit on XDSL** as taught by Locklear.

For at least the above stated reasons, Appellant submits that claim 8 is patentable over the cited art.

Claim 10 recites a combination of features including: "receiving frames from said VDSL facility, wherein a given Ethernet frame is encapsulated entirely within a received frame." The same teachings of Terry and Locklear, highlighted above with regard to claim 8, are alleged to teach the above features of claim 10. Appellant submits that claim 10 is patentable over the cited art as well.

Claim 38 recites a combination of features including: "encapsulating the Ethernet frame within a first frame; and transmitting the first frame over a very high speed digital subscriber line (VDSL) facility." The same teachings of Terry and Locklear, highlighted above with regard to claim 8, are alleged to teach the above features of claim 38. Appellant submits that claim 38 is patentable over the cited art as well.

Claim 48 recites a combination of features including: "encapsulating an Ethernet frame within a first frame to be transmitted over a very high speed digital subscriber line (VDSL) facility." The same teachings of Terry and Locklear, highlighted above with regard to claim 8, are alleged to teach the above features of claim 48. Appellant submits that claim 48 is patentable over the cited art as well.

Claim 53 recites a combination of features including: "extracting an Ethernet frame from a first frame received over a very high speed digital

subscriber line (VDSL) facility." The same teachings of Terry and Locklear, highlighted above with regard to claim 8, are alleged to teach the above features of claim 53. Appellant submits that claim 53 is patentable over the cited art as well.

Claims 9, 11, 30-37, 39-47, 49-52, and 54-56 depend from one of claims 8, 10, 38, 48, or 53 and recite additional combinations of features not taught or suggested in the cited art.

Second Ground of Rejection:

Claims 30-32, 34-36, 40, 42-44, 46-47, and 52-56:

Treadaway's frames are also large enough to encapsulate Ethernet frames

As noted in the Appeal Brief, the Examiner adds Treadaway to the proposed combination of Terry and Locklear, as allegedly teaching various features of claims 30-32, 34-36, 40, 42-44, 46-47, and 52-56. Treadaway does not cure the deficiencies in the Terry/Locklear combination with regard to the claims on which claims 30-32, 34-36, 40, 42-44, 46-47, and 52-56 depend. Accordingly, the rejection of claims 30-32, 34-36, 40, 42-44, 46-

47, and 52-56 is in error for at least the above highlighted reasons. See Appeal Brief, pages 24-25.

The Answer responds to this argument, noting that Treadaway was not cited to cure the deficiencies. See Answer, page 15, last paragraph. Nevertheless, since the Terry/Locklear combination as deficient as highlighted above, the combination of Terry, Locklear and Treadaway cannot render the claims obvious.

In addition, Appellant further submits that Treadaway, similar to Terry, appears to teach a radio signal frame that is defined by Treadaway (as opposed to relying on some industry standard). See Treadaway, col. 14, lines 32-39. Thus, Treadaway's frames are large enough to encapsulate the Ethernet frames, just like Terry's frames. Accordingly, for reasons similar to those highlighted above with respect to Terry and Locklear, it is not obvious to combine Treadaway's radio frames with Locklear's teachings related to XDSL frames. The Answer again returns to the erroneous assertion that some frames would be successfully transmitted on Locklear's XDSL, and that such transmission would motivate one of skill in the art to encapsulate all ECAP frames for successful transmission on XDSL. See Answer, page 15, last paragraph extending to page 16. For the same reasons given above with regard to claim 8, the Examiner's reasoning is erroneous.

For at least the above stated reasons, Appellant submits that the rejection of claims 30-32, 34-36, 40, 42-44, 46-47, and 52-56 is in error and requests reversal of the rejection.

Third Ground of Rejection:

Claims 33, 37, and 45

The rejection is improper and does not cure the failure in the earlier rejections

The Examiner adds Snodgrass to the proposed combination of Terry, Locklear, and Treadaway as allegedly teaching features of claims 33, 37, and 45. Appellant noted that that Snodgrass does not cure the deficiencies in the Terry/Locklear/Treadaway combination (see Appeal Brief, pages 26-27). Accordingly, the rejection of claims 33, 37, and 45 is in error for at least the above highlighted reasons. The Answer disagrees, asserting that Treadaway is only used to show the preamble comprising a Barker code. See Answer, page 16. This is clearly erroneous, as Treadaway does not teach a Barker code. The Answer may have meant to state that Snodgrass teaches a Barker code, but the asserting that Treadaway teaches a Barker code is completely unfounded.

Nevertheless, the rejection of claims 33, 37, and 45 is erroneous for at least the reasons given previously because the Terry/Locklear/Treadaway combination does not teach the features of the claims on which claims 33, 37, and 45 depend.

For at least the above stated reasons, Appellant submits that the rejection of claims 33, 37, and 45 is in error and requests reversal of the rejection.

CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 8-11 and 30-56 was erroneous, and reversal of the decision is respectfully requested.

Appellant believes that no fees are due. However, the Commissioner is authorized to charge any fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5957-48401.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above-referenced application from becoming abandoned, Applicant hereby petitions for such extension.

Respectfully submitted,

Date: January 25, 2010

By: /Lawrence J. Merkel/
Lawrence J. Merkel
Reg. No. 41,191

Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.
P. O. Box 398
Austin, Texas 78767
(512) 853-8800
lmerkel@intprop.com